IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appln. No. : 10/774,824 Confirmation No. 9238  
Applicant : Bryan P. Dube et al.  
Filed : February 9, 2004  
TC/A.U. : 3745  
Examiner : D. White

Docket No. : EH-10900(04-101)  
Customer No. : 34704

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313

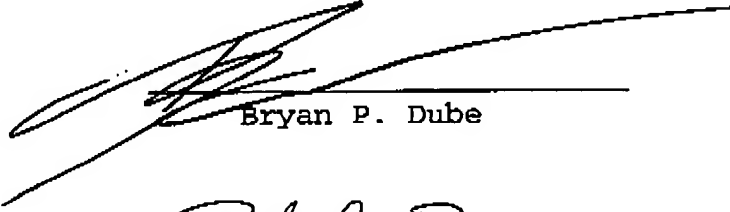
DECLARATION

BRYAN P. DUBE and RICHARD PAGE declare that they are the inventors who, on February 9, 2004, filed the above-identified patent application; that they completed their invention, having made drawings thereof and disclosed the same to others, in this country prior to April 18, 2003, the filing date of the application from which Patent No. 6,805,530 matured and prior to December 12, 2003, the filing date of the application from which Patent No. 6,913,445 matured; that prior to April 18, 2003, they prepared drawings, a photostatic copy of which is attached hereto; that they do not know and do not believe that the invention has been in public use or on sale in this country, or patented or described in a printed publication in this or any foreign country for more than one year prior

to their application, and they have never abandoned their invention.

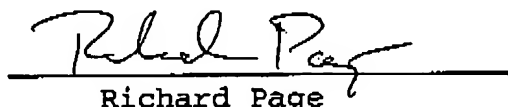
The undersigned declare further that all statements made herein of their own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 10-7-05



Bryan P. Dube

Date: 10/7/05



Richard Page

**INVENTION DISCLOSURE****Pratt & Whitney**

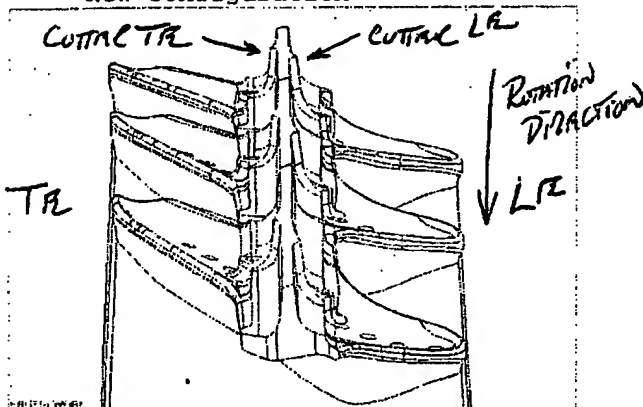
A United Technologies Company

Title Shroud Honeycomb Cutter.Patent Project No. EH-10900**Description and Sketches**

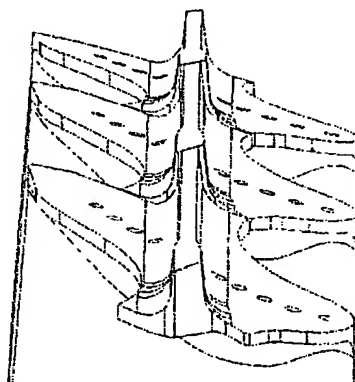
It is aerospace standard for gas turbine shrouded blades to have Knife edge features that interface with static structure supported honeycomb. This provides current art in interstage sealing at the tip end of shrouded turbine airfoils. It is believed that shrouded large frame IGT airfoils with much wider knife edges that interface with honeycomb require an additional feature to "cut" into the honeycomb. The configuration below is an improvement over the current design standard because it moves the mass of the "cutter" to a more balanced area above the shroud. It is believed the current standard design results in a life shortfall of the shroud creep or "curling" requirements due to the extra-mass of the cutter feature being located at the outer edge of the shroud. The improved P&W design meets shroud creep life. Additionally the improved design is created with machining techniques rather than cast surfaces allowing the knife edge to be thinner than the current design standard resulting in a lightweight knife edge also improving shroud creep and also improving airfoil creep.

The P&W cutter is designed to cut honeycomb fore and aft. The front and back sides of the knife edge have been machined to result in protruded interrupted surfaces with a sharp edge that can be seen in the top view.

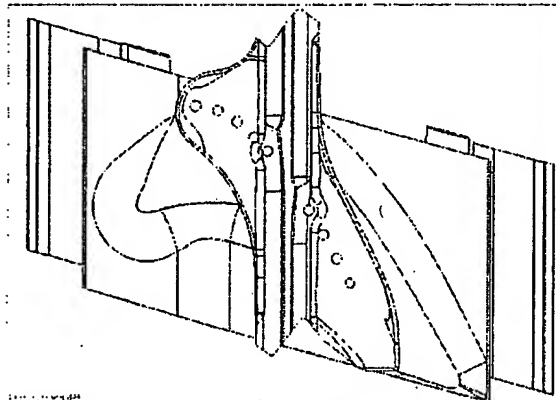
New configuration



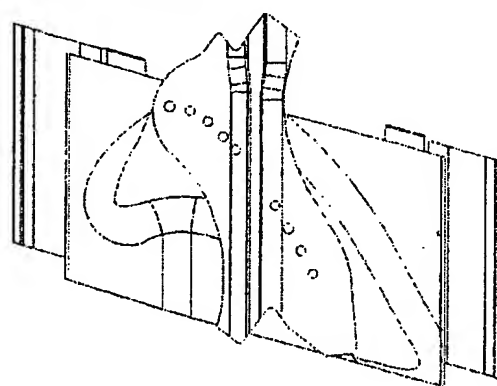
Competition



Above- Suction side view of Knife edges with cutters



Above- Top view of shroud with cutter



Explained to and understood by:

Signature: [Signature]  
Signature: Eric Day

Date: 3/3/03  
Date: 3/3/03

Inventor(s):

Signature: [Signature]  
Signature: Robert P...

Date: 3-7-03  
Date: 3/3/03